

Radio Casa Pueblo and the importance of the energy generation model at the point of consumption

Arturo Massol-Deyá, Ph.D.
Executive Director
Casa Pueblo de Adjuntas
arturomassol@gmail.com
<https://casapueblo.org/>

Re: November 17th FCC Hearing on Impact to Communications of Hurricanes Fiona and Ian

Att: Chairwoman Rosenworcel

Climate change and natural events such as earthquakes and hurricanes compromise the energy security required by communication systems, vital on good days, but crucial in times of crisis. In the case of Puerto Rico, the centralized generation model combines three levels of vulnerability: (i) acquisition, transportation, unloading, storage, and distribution of fossil fuels, (ii) generation in thermoelectric plants, and (iii) a network of transmission and distribution lines. In addition, the communication towers are usually distant in remote mountainous areas, in many instances difficult to access. Heavy rains or prolonged periods of rain such as those experienced in 2022 are also responsible for landslides on rural roads, making it difficult to refuel electric generators that are used as backup sources. After Hurricane Maria, the USFS documented over 44,000 landslides on the island via satellite.

When the electrical system fails in rural areas due to hurricanes, the electrical interruption can usually last for weeks or months. In the municipality of Adjuntas, the electric utility took almost four months to repower the urban center and up to a year in rural areas after María. With Fiona it took weeks even though the winds did not compromise the integrity of the transmission and distribution system. Most of the breakdowns were caused by poor maintenance of the lines.

Casa Pueblo is a community organization with 42 years of forest conservation initiatives, diverse educational projects, and promotes local sustainable development with planetary responsibility. Our main facilities have been operating with solar energy since 1999 and 15 years ago, in 2007, we acquired WOQI 1020AM and transformed it into the first community and ecological radio station in Puerto Rico: Radio Casa Pueblo ‘la voz de las aguas, los bosques y nuestra gente [*voice of the waters, forests and our people*]’.

Radio Casa Pueblo after Hurricane Maria

In the summer of 2017, Casa Pueblo modernized its solar energy system, including the energy demand of the radio station through a microgrid. After the impact of María, Casa Pueblo continued its functions without interruption and served as an energy oasis for the community while the station was vital to inform the community, organize brigades, distribute aid, music for

the soul, to mediate messages between the diaspora and family members in the community, among other services. However, our airtime was limited by all the difficulties in refueling the transmission tower generator. In addition, the absence of telephone and internet made the work very complicated.



Building community resilience (2017-present)

We have done over 200 roof-top solar projects in Adjuntas to address food [in]security (grocery stores in rural areas), education (elementary school), poverty and health (over 100 homes with family members fighting chronic diseases), critical infrastructure (fire station, pharmacy, elderly home), entertainment (solar cinema) and for economic activation (over 20 small business). With an approximate investment of \$73,000 in December 2017, we installed 42 260-watt solar panels that produce around 16,000 KWh per year, combined with a UNIGY II 48AVR95-33 model battery at our transmission tower. In addition, we changed the transmitter for one with high energy efficiency and satellite internet.

Radio Casa Pueblo after Hurricane Fiona

Our community radio operated normally before, during and after Hurricane Fiona without the need for backup generators. Despite facing three consecutive very cloudy days and daily periods

of rain, the transmitter did not have to operate its backup generator. Satellite internet proved to be important at times when land-based internet service was interrupted.



Conclusion

Generating clean energy with roof-top solar at the point of consumption represents a climate adaptation path that reduces emissions associated with communications and offers energy resilience for continued operations and services.